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SATCOM PRODUCTS

Versoin:14-2.0

PRODUCT INFORMATION

Philtech Co., Ltd.
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LNB Line-Up

PTL Series

Ku Multi LO LNB(Internal)

The Ku-Band mini-Multi-LO LNB is designed for use primarily in VSAT applications. This LNB shows so ultra wide bandwidth that covers almost all world-wide Ku-band VAST frequency range(10.7 ~ 12.75 GHz) and its IF frequency band supports almost all kinds of L-Band MODEMs(950 ~1700 MHz).

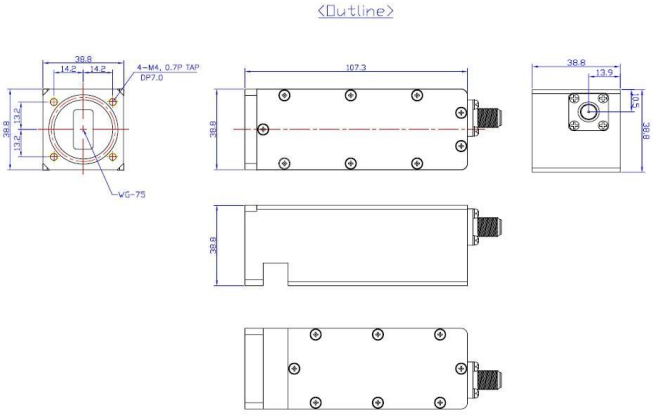
Main Feature

- Ultra wide bandwidth (full Ku-Band)
- Ultra Small size
- Quad Band (4-LO)
- Low Noise Figure
- Ultra Low Phase Noise
- ±5kHz Stability
- High IP3 (Option)
- LO frequency switching by DC input level(13/18V) and 22kHz Tone signal thru IF cable
- Separated LNB Controller Module supported

Item	Parameters	Specifications			Notes
Electrical Spec.	RF Frequency	10.7 ~ 12.75 GHz			
	LO Frequency	9.75, 10.0 10.25, 10.5, 10.6, 10.75, 11.05, 11.2, 11.25, 11.3 GHz			Select max. 4 LO frequency
	IF Frequency	950 ~ 1700 MHz			
	Phase Noise	@ 1 kHz	-70 dBc		
		@ 10 kHz	-80 dBc		
		@ 100 kHz	-95 dBc		
		@ >1 MHz	-120 dBc		
	LO stability	±5 kHz			over temp. range
	Gain	65 dB			typ.
	Gain variation	±0.4 dB			within 30 MHz
		±4 dB			max.
	Noise Figure	0.8 dB			typ.
	In/Out VSWR	2:1			max.
	Band Switch Configuration	Band1	VDC 11.5~14.0V / Tone OFF		
		Band2	VDC 11.5~14.0V / Tone ON		
		Band3	VDC 16.0~19.0V / Tone OFF		
		Band4	VDC 16.0~19.0V / Tone ON		
	DC Input Voltage	Band1,2	11.5 ~ 14.0 V		
		Band3,4	16.0 ~ 19.0 V		
	Current Consumption	300 mA			typ.
	Requirements for 22kHz Tone	Freq.	22kHz ± 4 kHz		
		Amp.	0.6 ± 0.2V		
		Duty	50% ± 10%		

Item	Parameters	Specifications	Notes
Mechanical Spec.	Input	WR-75 with Groove	
	Output (waterproof)	F-connector N (Optional)	75 ohm (50 ohm)
	Dimensions	147.4(L) x 43.8(W) x 46.6 (H) mm	
	Weight	310g	
Thermal Spec.	Operating temperature	-30 ~ +70 ˚C	
	Storage temperature	-40 ~ +80 ˚C	

Mechanical Drawing



Line-Up

Model No.	IF Connector	LO Frequency
PTL-KUQIF-Option	F-Type	Select 4 LO frequencies
PTL-KUQIN-Option	N-Type	

Option(LO)

01– LO 9.75/10.25/10.75/11.30 GHz
02 – LO 9.75/10.00/10.75/11.30 GHz
03 – LO 9.75/10.25/10.75/11.25 GHz
04 – LO 10.00/10.50/10.75/11.25 GHz
05 – LO 10.00/10.75/11.30/9.75 GHz
06 – LO 9.75/10.50/11.05/10.00 GHz

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Ku Multi LO LNB(external)

The Ku-Band mini-Multi-LO LNB is designed for use primarily in VSAT applications. This LNB shows so ultra wide bandwidth that covers almost all world-wide Ku-band VAST frequency range(10.7 ~ 12.75 GHz) and its IF frequency band supports almost all kinds of L-Band MODEMs(950 ~1700 MHz).

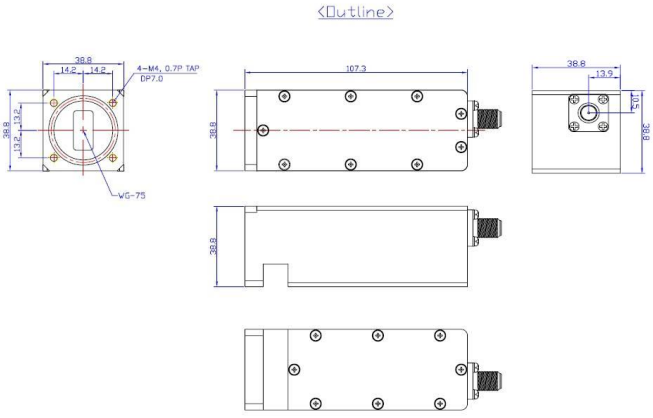
Main Feature

- Ultra wide bandwidth (full Ku-Band)
- Ultra Small size
- Quad Band (4-LO)
- Low Noise Figure
- Ultra Low Phase Noise
- External 10MHz reference
- LO frequency switching by DC input level(13/18V) and 22kHz Tone signal thru IF cable
- Separated LNB Controller Module supported

Item	Parameters	Specifications			Notes
Electrical Spec.	RF Frequency	10.7 ~ 12.75 GHz			
	LO Frequency	9.75, 10.0 10.25, 10.5, 10.6, 10.75, 11.05, 11.2, 11.25, 11.3 GHz			Select max. 4 LO frequency
	IF Frequency	950 ~ 1700 MHz			LO:11.2->950~1550Mhz LO:11.25->950~1500Mhz LO:11.3->950~1450Mhz
	Phase Noise	@ 1 kHz	-70 dBc		
		@ 10 kHz	-80 dBc		
		@ 100 kHz	-95 dBc		
		@ >1 MHz	-120 dBc		
	LO stability	Depends upon External References			
	Gain	65 dB			typ.
	Gain variation	±0.4 dB			within 30 MHz
		±4 dB			max.
	Noise Figure	0.8 dB			typ.
	In/Out VSWR	2:1			max.
	Band Switch Configuration	Band1	VDC 11.5~14.0V / Tone OFF		
		Band2	VDC 11.5~14.0V / Tone ON		
		Band3	VDC 16.0~19.0V / Tone OFF		
		Band4	VDC 16.0~19.0V / Tone ON		
	DC Input Voltage	Band1,2	11.5 ~ 14.0 V		
		Band3,4	16.0 ~ 19.0 V		
	Current Consumption	300 mA			typ.
	Requirements for 22kHz Tone	Freq.	22kHz ± 4 kHz		
		Amp.	0.6 ± 0.2V		
		Duty	50% ± 10%		

Item	Parameters	Specifications	Notes
Mechanical Spec.	Input	WR-75 with Groove	
	Output (waterproof)	F-connector N (Optional)	75 ohm (50 ohm)
	Dimensions	147.4(L) x 43.8(W) x 46.6 (H) mm	
	Weight	310g	
Thermal Spec.	Operating temperature	-30 ~ +70 ˚C	
	Storage temperature	-40 ~ +80 ˚C	

Mechanical Drawing



Line-Up

Model No.	IF Connector	LO Frequency
PTL-KUQEF-Option	F-Type	Select 4 LO frequencies
PTL-KUQEN-Option	N-Type	

Option(LO)

01– LO 9.75/10.25/10.75/11.30 GHz
02 – LO 9.75/10.00/10.75/11.30 GHz
03 – LO 9.75/10.25/10.75/11.25 GHz
04 – LO 10.00/10.50/10.75/11.25 GHz
05 – LO 10.00/10.75/11.30/9.75 GHz
06 – LO 9.75/10.50/11.05/10.00 GHz

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Ku Dual LO LNB(Internal/External)

The Ku-Band mini-Dual LO LNB is designed for use primarily in VSAT applications. This LNB shows so ultra wide bandwidth that covers almost all world-wide Ku-band VAST frequency range(10.7 ~ 12.75 GHz) and its IF frequency band supports almost all kinds of L-Band MODEMs(950 ~2150 MHz).

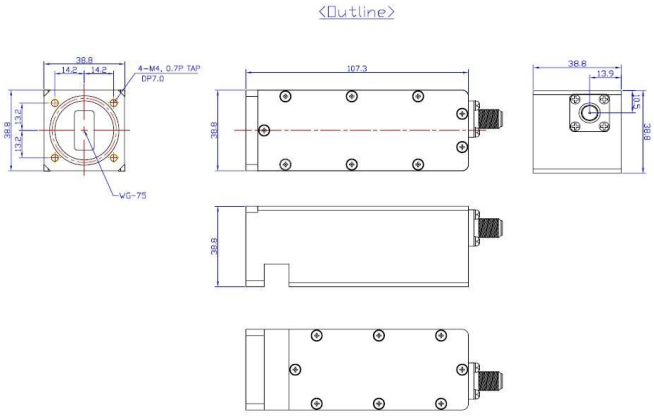
Main Feature

- Ultra Small size
- Dual Band (2-LO)
- Low Noise Figure
- Ultra Low Phase Noise
- Internal/ External 10MHz reference
- Band Selection option
- Separated LNB Controller Module supported

Item	Parameters	Specifications		Notes
Electrical Spec.	RF Frequency	10.7 ~ 12.75 GHz		
	LO Frequency	9.75, 10.6, 10.75 GHz		Select max. 2 LO frequency
	IF Frequency	950 ~ 2150 MHz 950 ~ 2150 MHz 950 ~ 2000 MHz		LO: 9.75 GHz LO: 10.6 GHz LO:10.75 GHz
	Phase Noise	@ 1 kHz	-70 dBc	
		@ 10 kHz	-80 dBc	
		@ 100 kHz	-95 dBc	
		@ >1 MHz	-120 dBc	
	LO stability	Internal: +-5KHz, External: Depends on Ext. Ref.		
	Gain	62 dB		typ.
	Gain variation	±0.4 dB		within 30 MHz
		±4 dB		max.
	Noise Figure	0.8 dB		typ.
	In/Out VSWR	2:1		max.
	Band Selection	Option 1	Voltage 13V/18V	
		Option 2	22KHz Tone On/Off	
	Current Consumption	320 mA		typ.
	Requirements for 22kHz Tone	Freq.	22kHz ± 4 kHz	
		Amp.	0.6 ± 0.2V	
		Duty	50% ± 10%	

Item	Parameters	Specifications	Notes
Mechanical Spec.	Input	WR-75 with Groove	
	Output (waterproof)	F-connector N (Optional)	75 ohm (50 ohm)
	Dimensions	147.4(L) x 43.8(W) x 46.6 (H) mm	
	Weight	310g	
Thermal Spec.	Operating temperature	-30 ~ +70 ˚C	
	Storage temperature	-40 ~ +80 ˚C	

Mechanical Drawing



Line-Up

Model No.	IF Connector	LO Frequency
PTL-KUDIF-Option	F-Type, Internal	Select 2 LO Freq.
PTL-KUDIN-Option	N-Type, Internal	
PTL-KUDEF-Option	F-Type, external	
PTL-KUDEN-Option	N-Type, external	

Option(LO)

01 – LO 10.00/11.00 GHz
02– LO 10.00/10.75 GHz
03 – LO 9.75/10.75 GHz
04 – LO 10.00/10.80 GHz
05 – LO 9.75/10.60 GHz
06 – LO 10.00/11.30 GHz
07 – LO 10.00/10.90 GHz

Ku PLL Single LNB

Main Feature

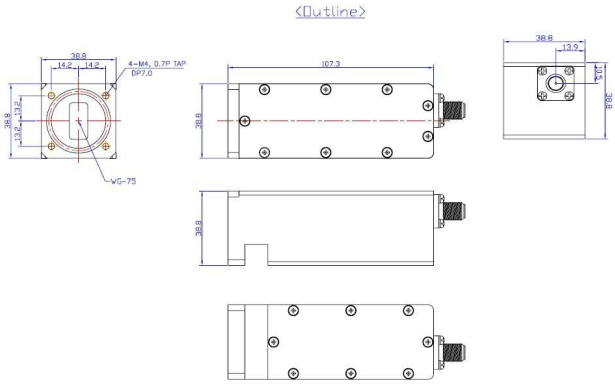
- Low Noise Figure (0.7dB)
- Ultra Low Phase Noise
- Excellent Frequency Stability(±0.5ppm)

Specification

Item	Parameters	Specifications		Notes
Electrical Spec.	Phase Noise	@ 1 kHz	-75 dBc	
		@ 10 kHz	-85 dBc	
		@ 100 kHz	-100 dBc	
		@ >1 MHz	-125 dBc	
	LO stability	±0.5 ppm		over temp. range
	Conversion Gain	60 dB		typ.
	Gain variation	±0.4 dB		within 30 MHz max.
		±2.5 dB		max.
	Noise Figure	0.7 dB		typ.
	Input/Output VSWR	2:1		max.
	DC Input Voltage	13 ~ 24.0 V		
	Current Consumption	300 mA		typ.

Item	Parameters	Specifications	Notes
Mechanical Spec.	Input	WR-75 with Groove	
	Output (waterproof)	F-connector / N (Optional)	75 ohm (50 ohm)
	Dimensions	147.4(L) x 43.8(W) x 46.6 (H) mm	
	Weight	310g	
Thermal Spec.	Operating temperature	-30 ~ +60 ˚C	
	Storage temperature	-40 ~ +80 ˚C	

Mechanical Drawing



Line-Up

Model No.	LO Freq.	Connector Type
PTL-KUSIF-Option	Select one LO	F-Type
PTL-KUSIN-Option		N-Type

Option(LO)

01 – LO 9.75 GHz
02– LO 10.00 GHz
03 – LO 10.25 GHz
04 – LO 10.50 GHz
05 – LO 10.60 GHz
06 – LO 10.75 GHz
07 – LO 10.80 GHz
08 – LO 10.90 GHz
09 – LO 11.00 GHz
10 – LO 11.05 GHz
11 – LO 11.25 GHz
12 – LO 11.30 GHz

*In case of other LO frequencies beside the above, please contact Philtech sales.

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X-band LNB

The X-Band LNB is designed for use primarily in VSAT applications.

This LNB shows so ultra low noise and low phase noise performance.

Main Feature

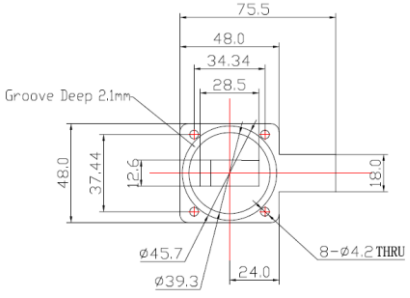
- External Reference (10MHz)
- Frontal WG Isolator (option)
- Low Noise Figure
- Low Phase Noise
- Internal TCXO option

Specification

Item	*Parameters*	*Specifications*		*Notes*
Electrical Spec.	RF Input Frequency	7.25 ~ 7.75 GHz		
	LO Frequency	6.3 GHz		
	IF frequency	950 ~ 1450 MHz		
	Noise temperature	50˚K		NF : 0.7dB
	Phase Noise	@ 100 Hz	-65 dBc	
		@ 1 kHz	-75 dBc	
		@ 10 kHz	-85 dBc	
		@ 100 kHz	-95 dBc	
		@ >1 MHz	-105 dBc	
	Min. Ext. Ref. Phase Noise requirements	@ 100 Hz	-125 dBc	
		@ 1 kHz	-135 dBc	
		@ 10 kHz	-145 dBc	
	Ext. freq. reference	10 MHz		@ output connector
	Ref. freq. level	-10~+15 dBm		
	LO Stability	Slave to Ext. Ref.		
	Conversion Gain	65 dB		Nominal value
	Gain flatness	±0.75 dB		within 40 MHz
		±1.5 dB		full band (500 MHz)
	Gain stability	≤0.5 dB		24 Hours
	Gain variation	±2 dB		Over Temp. range
	Output P1dB	+5 dBm		
	OIP3	+17dBm		
	LO leakage	-90dBm		@ WG input port
	Image Rejection	> 70dBc		
	Input VSWR	1.3:1		
	Output VSWR	1.5:1		
	DC Input Voltage	10 ~ 30 VDC		Multiplexed on IF connector with 10MHz ref.
	Current Consumption	280 mA		typ.

Item	*Parameters*	*Specifications*	*Notes*
Mechanical Spec.	Input Interface	WR-112 with Groove	
	Output Interface	SMA(F)	50 ohm
	Dimensions	151.5 x 86.5 x 50.4 mm (with isolator)	
	Weight	670 g	
Thermal Spec.	Humidity	100% Condensing	
	Operating temperature	-30 ~ +70 ˚C	
	Storage temperature	-40 ~ +85 ˚C	

LNB Input WG drawing



Isolator Input Interface : WG-112 Grooved

Line-Up

Model No.	*IF Connector*
PTL-XSIS-01	SMA-Type

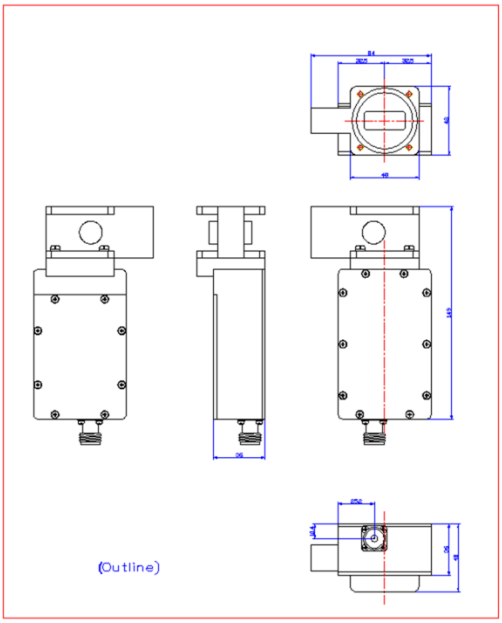
X-band Up-link LNB

Main Features

- X-Band Up-link operation (7.9 GHz ~ 8.4GHz)
- Internal & External Reference Detection and Auto Selection
- Frontal Waveguide Isolator
- Ultra Low Noise Figure
- Ultra Low Phase Noise
- Compact size and light weight
- Rugged Design/High Reliability

Parameters	*Specifications*		*Notes*
RF Input Frequency	7.9 ~ 8.4 GHz		
LO Frequency	6.95 GHz		
IF frequency	950 ~ 1450 MHz		
Noise Figure	0.75dB typ		@ room temp., including W/G isolator
Phase Noise	@ 100 Hz	-80 dBc	@ External Reference
	@ 1 kHz	-85 dBc	@ External Reference
	@ 10 kHz	-95 dBc	@ External Reference
	@ 100 kHz	-105 dBc	@ External Reference
	@ >1 MHz	-125 dBc	@ External Reference
Min. Ext. Ref. Phase Noise requirements	@ 100 Hz	-125 dBc	
	@ 1 kHz	-135 dBc	
	@ 10 kHz	-145 dBc	
Ext. freq. reference	10 MHz		@ IF output connector
Ref. freq. level	> 0 dBm		Below 0dBm, LNB will operates with internal reference
LO Stability	External : Slave to Ext. Ref. Internal : ±0.5 ppm		
Conversion Gain	65 dB		Nominal value
Gain flatness	±0.5 dB		within 40 MHz
	±1.5 dB		full band (500 MHz)
Gain stability	≤0.5 dB		24 Hours
Gain variation	±2 dB		Over Temp. range
Output P1dB	+5 dBm		
OIP3	+17dBm		
Image Rejection	> 50dBc		
Input VSWR	1.3:1		
Output VSWR	1.5:1		

Parameters	*Specifications*	*Notes*
DC Input Voltage	12 ~ 20 VDC	Multiplexed on IF connector with 10MHz ref.
Current Consumption	520 mA	typ.
Input Interface	WR-112 with Grooved	
Output Interface	N-connector (Female)	50 ohm
Dimensions	149 x 94 x 48 mm (with WG isolator)	N connector excluded
Weight	605g	Typ.
Humidity	100% Condensing	
Operating temperature	-35 ~ +60 ˚C	
Storage temperature	-40 ~ +85 ˚C	



Line-Up

Model No.	*IF Connector*
PTL-XUAN-01	N Type

Ka Band LNB

The Ka-Band LNB is designed for use primarily in K/Ka Band satellite applications.

Main Feature

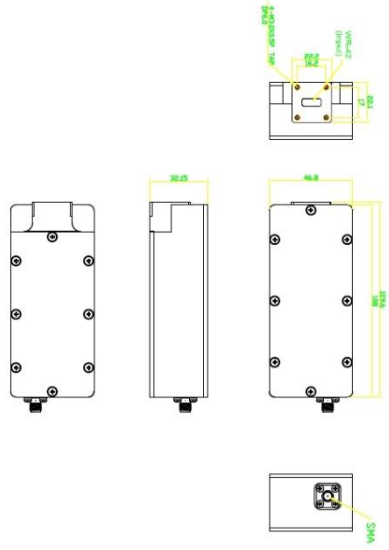
- Ultra Small size
- Low Noise Figure
- Ultra Low Phase Noise

Specification

Item	*Parameters*	*Specifications*		*Notes*
Electrical Spec.	RF Input Frequency	19.20 ~ 20.20 GHz		
	LO Frequency	18.25 GHz		
	IF frequency	950 ~ 1950 MHz		
	Noise Figure	1.5dB		
	Ext. ref. Phase Noise	@ 100 Hz	-135	10MHz
		@ 1 kHz	-145	10MHz
		@ >10 kHz	-155	10MHz
		@ 100 kHz	-115	50MHz
		@ >1 MHz	-135	50MHz
		@ >10 kHz	-145	50MHz
	Ext. freq. reference	50 MHz		@ output connector
	LO Stability	Slave to Ext. Ref.		
	Conversion Gain	70 dB		Nominal value
	Gain(absolute linear)	Over input freq. range	Min.65, Max.75	
	Output P1dB	+10 dBm min.		
	OIP3	20 dBm min.		Output(IF)
	LO leakage	At Input, only LO		
	Image Rejection	18.5 GHz	Min. 20dB	
		21.0 GHz	Min. 20 dB	
	Input VSWR	2.0:1		
	Output VSWR	1.7:1		
	DC Input Voltage	9 ~ 15 VDC		
	Current Consumption	4W Max.		

Item	*Parameters*	*Specifications*	*Notes*
Mechanical Spec.	Input Interface	WR-42 with Groove	
	Output Interface	SMA(F)	50 ohm
	Dimensions	110.0 x 47.0 x 32.0 mm	
	Weight	255 g	
Thermal Spec.	Humidity	100% Condensing	
	Operating temperature	-30 ~ +80 ˚C	
	Storage temperature	-40 ~ +85 ˚C	

Mechanical Drawing

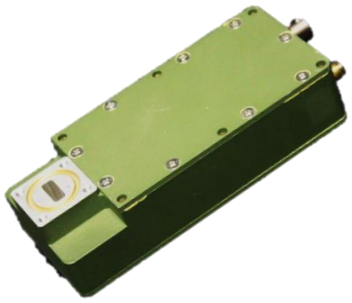


Line-Up

Model No.	*IF Connector*
PTL-KASIS-01	SMA

Ka Band LNB

The Ka-Band LNB is designed for use primarily in K/Ka Band satellite applications.



Main Feature

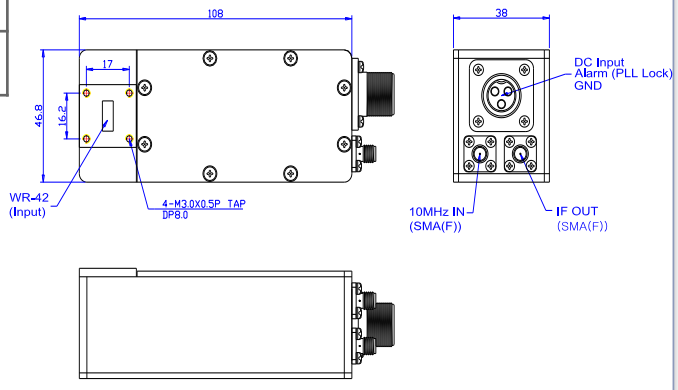
- Ultra Small size
- Low Noise Figure
- M&C Control

Specification

Item	Parameters	Specifications		Notes
Electrical Spec.	RF Input Frequency	20.20 ~ 21.20 GHz		
	IF frequency	2500 ~ 3500 MHz		
	Noise Figure	1.6dB		
	Ext. ref. Phase Noise	@ 100 Hz	-65	
		@ 1 kHz	-75	
		@ >10 kHz	-85	
		@ 100 kHz	-95	
		@ >1 MHz	-95	
	Gain(absolute linear)	60±3dB		
	Gain Flatness	±1.5dB@1GHz BW		
	Output P1dB	+10 dBm min.		
	Input VSWR	2.0:1		
	Output VSWR	1.5:1		
	DC Input Voltage	+8 VDC		
	Current Consumption	7W Max.		
	M&C	PLL Lock, TTL		M&C Connector

Item	Parameters	Specifications	Notes
Mechanical Spec.	Input Interface	WR-42 with Groove	
	Output Interface	SMA(F)	
	Dimensions	108.0 x 46.8 x 38.0 mm	
	Weight	355 g	
Thermal Spec.	Humidity	100% Condensing	
	Operating temperature	-30 ~ +80 ˚C	
	Storage temperature	-40 ~ +85 ˚C	

Mechanical Drawing



Line-Up

Model No.	IF Connector
PTL-KASIS-02	SMA

Ka Dual LO LNB

Main Feature

- Ultra wide bandwidth (19.2~20.2GHz/20.2~21.2GHz)
- Dual Band (2-LO)
- Ultra Low Noise Figure
- Ultra Low Phase Noise
- Internal/External Reference Auto-detect/selection
- High P1dB, High IP3
- LO frequency switching by DC input level(13/18V) thru IF cable

Item	*Parameters*	*Specifications*		*Notes*
Electrical Spec.	RF Input Frequency	Band 1 : 19.2~20.2GHz Band 2 : 20.2~21.2GHz		
	LO Frequency	Band 1 : 18.25 GHz Band 2 : 19.25 GHz		Band 1 V_{DC} : 13V Band 2 V_{DC} : 18V
	IF frequency	950 ~ 1950 MHz		Band1, Band2
	Phase Noise	@ 1 kHz	-80 dBc	Refer to typical Phase Noise plot
		@ 10 kHz	-90 dBc	
		@ 100 kHz	-100 dBc	
		@ >1 MHz	-120 dBc	
	LO stability	• Internal : ±0.5ppm • External : Dependent on Ext. reference		over temp. range
	Required External Reference Level	0dBm		Internal reference is selected below 0dBm external reference input
	Conversion Gain	65 dB		typ.
	Gain variation	±0.4 dB		within 30 MHz max.
		±2 dB		over 1GHz BW
	Noise Figure	1.5 dB		Max.
	Input / Output VSWR	Input VSWR : 2.5:1 Output VSWR : 1.5:1		max.
	P1dB output	20dBm		typ.
	OIP3	40dBm		typ.
	Image Rejection	-60dBc		Max.
	Band Switch Configuration	Band1		VDC 13V±2V
		Band2		VDC 18V±2V
	Power Consumption	Band1: 430mA Band2: 290mA		Internal DC/DC converter

Item	*Parameters*	*Specifications*
Mechanical Spec.	Input	WR-42 with Groove
	Output (waterproof)	N-connector F-connector
	Dimensions	110.0 x 47.0 x 32.0 mm
	Weight	300 g
Thermal Spec.	Operating temperature	-30 ~ +60 °C
	Storage temperature	-40 ~ +85 °C

Mechanical Drawing

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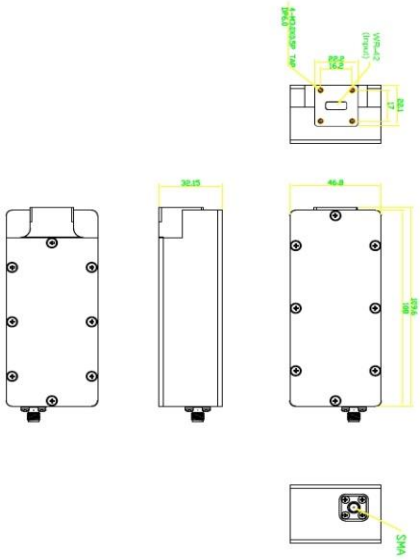


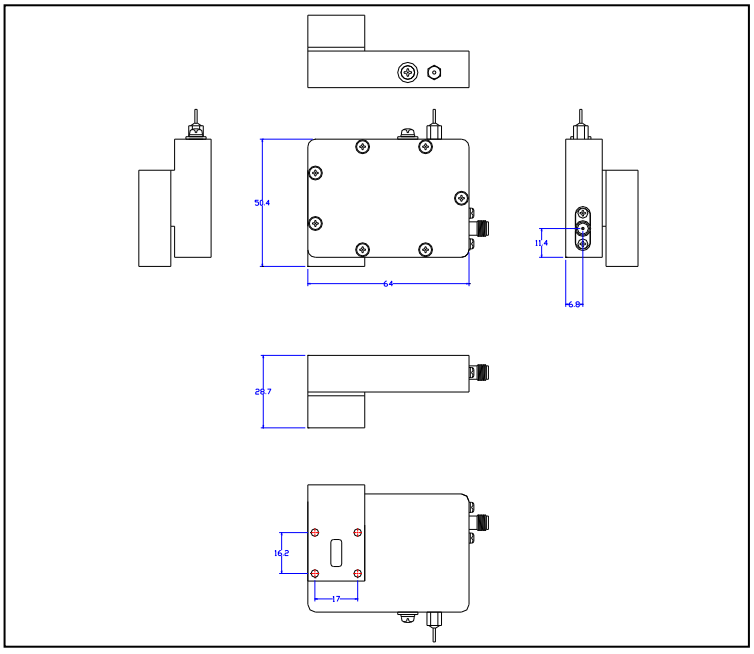
Line-Up

Model No.	*IF Connector*
PTL-KADAN-01	N Connector
PTL-KADAF-01	F Connector

Specification

Items	Specifications	Remark
Frequency	20.2 ~ 21.2GHz	
Gain (small signal)	32dB	Typical
Gain Flatness	± 1.5dB	
Max. input power no damage	0dBm	max.
Input IP3	17dBm	
Noise Figure	1.6 dB	with isolator
P1dB output	+7 dBm	
Input VSWR	1.5:1	
Output VSWR	2:1	
DC input voltage	+6~+20V	
Power consumption	80mA	max
Input Interface	WR-42	with groove
Output Interface	SMA	Female

Mechanical drawings

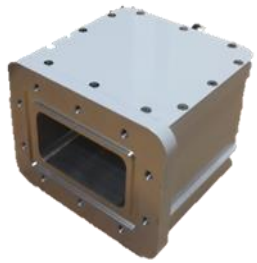


Preliminary

C-Band Dual LO LNB

Main Feature

- Ultra wide bandwidth (3.4~4.2GHz/4.5~4.8GHz)
- Satellite Band : Standard, Extended, ST-1/Palapa, Gorizont, Insat-C
- Dual Band (2-LO)
- Ultra Low Noise Figure
- Ultra Low Phase Noise
- Internal/External Reference Auto-detect/selection
- High P1dB, High IP3
- LO frequency switched by DC input level(13/18V) thru IF cable

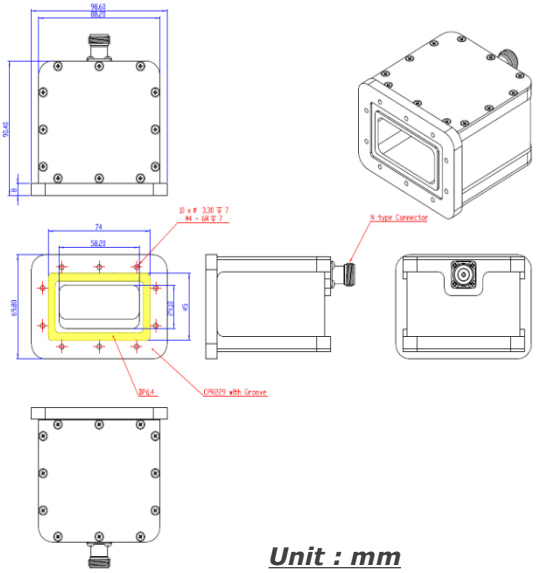


Parameters	*Specifications*		*Notes*
RF Input Frequency	Band 1 : 3.4~4.2GHz Band 2 : 4.5~4.8GHz		Band 1 : Standard Extended ST-1/Palapa Gorizont Band 2 : Insat-C
LO Frequency	Band 1 : 5.15 GHz Band 2 : 5.76 GHz		Band 1 V_{DC} : 13V Band 2 V_{DC} : 18V
IF frequency	Band 1 : 950 ~ 1750 MHz Band 2 : 960 ~ 1260 MHz		
Phase Noise	@ 1 kHz	-75 dBc	Refer to typical Phase Noise plot
	@ 10 kHz	-85 dBc	
	@ 100 kHz	-95 dBc	
	@ >1 MHz	-120 dBc	
LO stability	• Internal : ±0.25ppm • External : Dependent on Ext. reference		over temp. range
Required External Reference Level	-5dBm		Internal reference is selected below 0dBm external reference input
Conversion Gain	65 dB		typ.
Gain variation	±0.4 dB		within 30 MHz max.
	±2 dB		over 800MHz BW
Noise Figure	0.5 dB		Max.
Input / Output VSWR	Input VSWR : 2.0:1 Output VSWR : 1.5:1		max.
P1dB output	20dBm		typ.
OIP3	40dBm		typ.
Image Rejection	-60dBc		Max.
Band Switch Configuration	Band1		VDC 13V±2V
	Band2		VDC 18V±2V
Power Consumption	Refer to the table		Internal DC/DC converter

Item	*Parameters*	*Specifications*
Mechanical Spec.	Input	CPR-229 with Groove
	Output (waterproof)	N-connector F-connector
	Dimensions	90.4 x 98.6 x 69.8 mm
	Weight (typ.)	840 g
Thermal Spec.	Operating temperature	-30 ~ +60 °C
	Storage temperature	-40 ~ +85 °C

Line-Up

Model No.	*IF Connector*
PTL-CDAN-01	N Connector
PTL-CDAF-01	F Connector



Unit : mm

Philtech Co., Ltd.
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WW(World Wide) LNB

Main Features

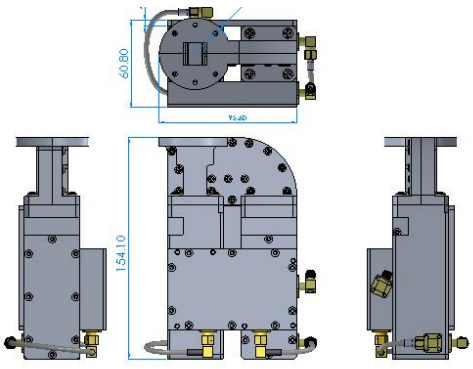
- Con-current mode two independent LNBs (Vertical & Horizontal)
- Two independent Ku-band microwave synthesizers
- Ultra wide-band IF-band (V : 950~3000MHz, H : 3400~5450MHz)
- One IFL cable delivers IF signals, power, synthesizer controls(DiSEqC 2.x)
- Integrated Waveguide OMT and IF diplexers
- Internal DC/DC converter for power efficiency
- Rugged Design for high reliability

Specification

Parameters	***Specifications***		***Notes***
RF Input Frequency	10.7 ~ 12.75 GHz		
LO Frequency	Vertical : 9.65 ~ 10.45 GHz Horizontal : 7.2 ~ 8 GHz		LO adjustable via DiSEqC 2.x
IF Output Frequency	Vertical : 950 ~ 3000 MHz Horizontal : 3400 ~ 5450 MHz		
Noise Figure	0.8 ~ 1.1 dB typ.		include Waveguide OMT
Phase Noise	@ 100 Hz	-65 dBc	Refer to the typical phase noise plot
	@ 1 kHz	-80 dBc	
	@ 10 kHz	-87 dBc	
	@ 100 kHz	-95 dBc	
	@ >1 MHz	-115 dBc	
LO Stability	Dependent on the option		Stability option : ±0.2ppm ~ ±50ppm (Temperature range : -40 ~ +85°C)
Internal Ref Frequency	50MHz		
Internal PLL Synthesizer	Integer mode : 19 bit		
	Fractional mode : 19 bit		
Conversion Gain	60 dB typ.		Nominal value
Gain flatness	±0.75 dB		within 40 MHz
	±4.5 dB		full band (2.05 GHz)
Gain stability	≤0.5 dB		24 Hours
Cross Polar Isolation	30dB		
IMD3	-55dBc min.		@ total Pout = -10dBm, 1MHz tone space
Input VSWR	2.5 : 1		
Output VSWR	2.5 : 1		
DC Input Voltage	15 ~ 20 VDC		Multiplexed on IF connector with DiSEqC 2.x.
Power Consumption	6W ~ 6.5 W typ.		Refer to the current consumption table

Parameters	***Specifications***	***Notes***
Input Interface	Rectangular WG	C120 Flange compatible
Output Interface	SMA(F)	50 ohm
Dimensions	154.1 x 95 x 60.8 mm	Connectors/cables are excluded
Weight	1080g	Typ.
Humidity	95%	
Operating temperature	-35 ~ +60 °C	
Storage temperature	-40 ~ +85 °C	

Mechanical Drawings



BUC Line-Up

Ku-band BUC

PTB-K Series

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.

These family of outdoor Ku-band BUCs provide unmatched efficiency and performance in the ultra small and light package in the SATCOM industry.

Ku-band 4W BUC

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.
The size of this unit is ultra small and the weight is very light.
This feature enables the of higher data rate communications, higher availability and smaller dish size to expand the chances for users requiring compact and mobile solutions.

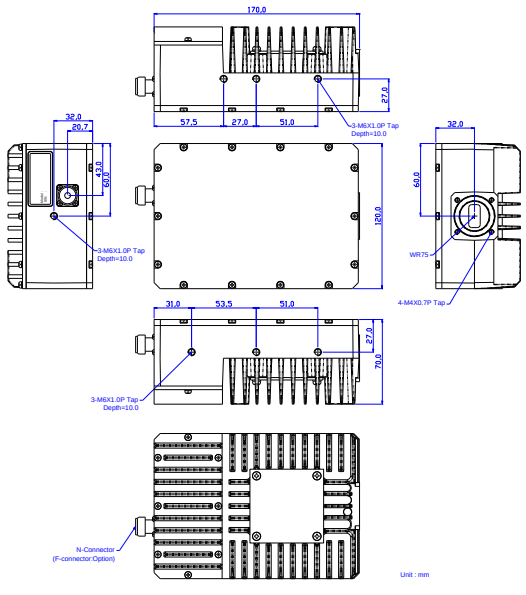
Main Feature

- Wide DC Power Operating Range (+16 ~ +60 VDC)
- Fanless
- Ultra Compact Size and Light Weight
- LED Indicator
- Automatic shutdown when over temp alarm or Loss of Lock

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		36 dBm (4W)	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		56 dB	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band	
IMD3		-26 dBc min. @ 33 dBm Output Power (SCL : 30 dBm each, two equal signals 5MHz apart)	
Spurious		-50 dBc @ 36 dBm Output Power	
Harmonics		-50 dBc max. @ 36 dBm Output Power	
Reference Signal		External 10MHz (Sine wave) Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
LO Phase Noise	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	45W	
Power Requirements	24/48 VDC (+18 ~ +60 VDC)	
Mechanical Specification		
Size (L x W x H mm)	172 X 120 X 70 mm	w/o IF connector
Weigh	2.2 Kg Typ.	
Input Connector	Type N (female) or Type F (female) (Multiplexed IF signal, 10MHz Ref, DC Power)	
Output Connector	WG-75 (with Groove)	
Cooling	Fansless	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



KU-BAND 4W BUC Outline

Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	IF Connector
PTB-KS04F	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS04N	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE04F	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE04N	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

Ku-band 6W BUC

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.
The size of this unit is ultra small and the weight is very light.
This feature enables the of higher data rate communications, higher availability and smaller dish size to expand the chances for users requiring compact and mobile solutions.

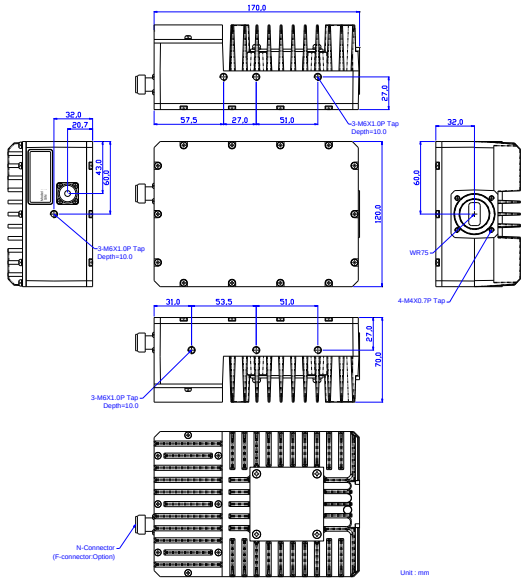
Main Feature

- Wide DC Power Operating Range (+16 ~ +60 VDC)
- Fanless
- Ultra Compact Size and Light Weight
- LED Indicator
- Automatic shutdown when over temp alarm or Loss of Lock

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		37.8 dBm (6W)	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		56 dB	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band	
IMD3		-26 dBc min. @ 33 dBm Output Power (SCL : 30 dBm each, two equal signals 5MHz apart)	
Spurious		-50 dBc @ 37.8 dBm Output Power	
Harmonics		-50 dBc max. @ 37.8 dBm Output Power	
Reference Signal		External 10MHz (Sine wave) Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
LO Phase Noise	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	40W	
Power Requirements	24/48 VDC (+18 ~ +60 VDC)	
Mechanical Specification		
Size (L x W x H mm)	172 X 120 X 70 mm	w/o IF connector
Weigh	2.2 Kg Typ.	
Input Connector	Type N (female) or Type F (female) (Multiplexed IF signal, 10MHz Ref, DC Power)	
Output Connector	WG-75 (with Groove)	
Cooling	Fansless	
Environmental Specification		
Operating Temperature	-40°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



KU-BAND 4W BUC Outline

Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	IF Connector
PTB-KS06F	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS06N	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE06F	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE06N	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

Preliminary

Ku-band 8W BUC
(Fan-less type)

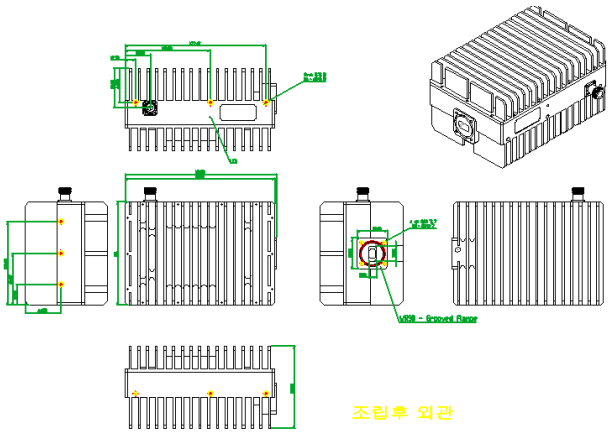
Main Feature

- Ultra Compact Size and Light Weight
- LED Indicator
- Internal & External Reference detection and auto selection

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		39 dBm (8W)	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		62 dB	
Gain Stability		± 2.0 dB @ over temp.	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.0 dB max. @ room temp over full band	
IMD3		-26 dBc min. @ 36 dBm Output Power (SCL : 33 dBm each, two equal signals 5MHz apart)	
Spurious		-55 dBc @ 39 dBm Output Power	
Harmonics		-55 dBc max. @ 39 dBm Output Power	
Reference Signal		External 10MHz (Sine wave) Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
LO Phase Noise	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	80W	
Power Requirements	24VDC (48 VDC Option)	
Mechanical Specification		
Size (L x W x H mm)	191.5 X 131 X 104.5 mm	w/o IF connector
Weigh	2.5 Kg Typ.	
Input Connector	Type N (female) or Type F (female) (Multiplexed IF signal, 10MHz Ref, DC Power)	Separated DC connector – Option
Output Connector	WG-75 (with Groove)	
Cooling	Fanless type	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-KS08F	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS08N	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE08F	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE08N	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

Ku-band 8W mini BUC
(Fan type)

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.
The size of this unit is ultra small and the weight is very light.
This feature enables the of higher data rate communications, higher availability and smaller dish size to expand the chances for users requiring compact and mobile solutions.

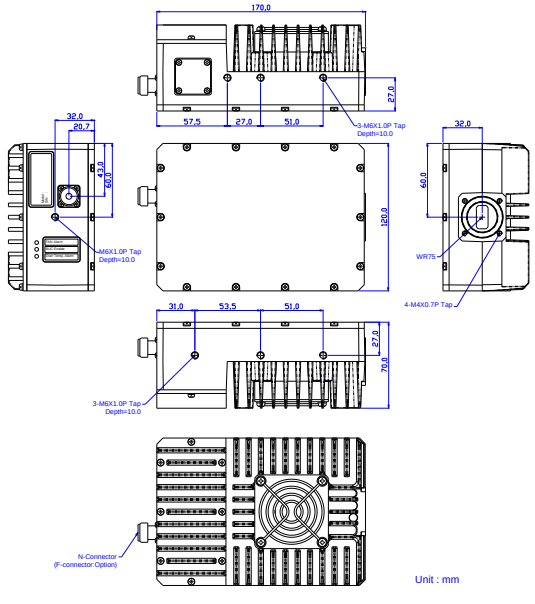
Main Feature

- Wide DC Power Operating Range (+16 ~ +60 VDC)
- Ultra Compact Size and Light Weight
- 3 LED Indicator
- Automatic shutdown when over temp alarm, FAN alarm or Loss of Lock

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		39 dBm (8W)	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		62 dB	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band	
IMD3		-26 dBc min. @ 36 dBm Output Power (SCL : 33 dBm each, two equal signals 5MHz apart)	
Spurious		-50 dBc @ 39 dBm Output Power	
Harmonics		-50 dBc max. @ 39 dBm Output Power	
Reference Signal		External 10MHz (Sine wave) Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
LO Phase Noise	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	95W	
Power Requirements	24/48 VDC (+18 ~ +60 VDC)	
Mechanical Specification		
Size (L x W x H mm)	172 X 120 X 70 mm	w/o IF connector
Weigh	2.1 Kg Typ.	
Input Connector	Type N (female) or Type F (female) (Multiplexed IF signal, 10MHz Ref, DC Power)	Separated DC connector – Option
Output Connector	WG-75 (with Groove)	
Cooling	Forced Air	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



KU-BAND 8W BUC Outline

Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-KS08F-O	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS08N-O	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE08F-O	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE08N-O	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

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Ku-band 10W mini BUC
(Fan type)

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.
The size of this unit is ultra small and the weight is very light.
This feature enables the of higher data rate communications, higher availability and smaller dish size to expand the chances for users requiring compact and mobile solutions.

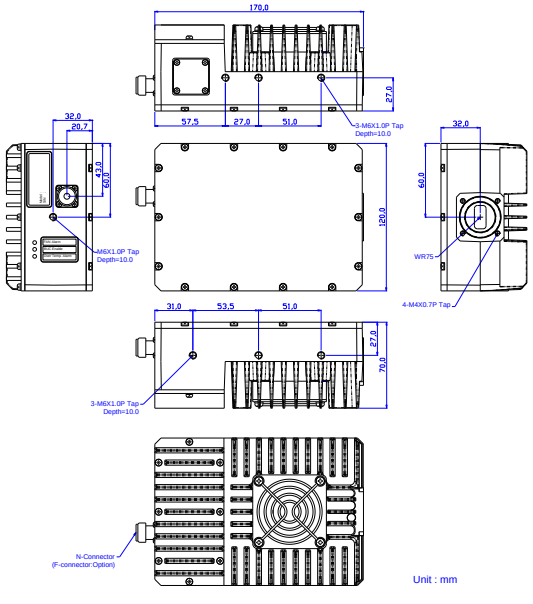
Main Feature

- Wide DC Power Operating Range (+16 ~ +60 VDC)
- Ultra Compact Size and Light Weight
- 3 LED Indicator
- Automatic shutdown when over temp alarm, FAN alarm or Loss of Lock

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		40 dBm (10W)	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		62 dB	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band	
IMD3		-26 dBc min. @ 36 dBm Output Power (SCL : 33 dBm each, two equal signals 5MHz apart)	
Spurious		-50 dBc @ 40 dBm Output Power	
Harmonics		-50 dBc max. @ 40 dBm Output Power	
Reference Signal		External 10MHz (Sine wave) Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
LO Phase Noise	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	95W	
Power Requirements	24/48 VDC (+18 ~ +60 VDC)	
Mechanical Specification		
Size (L x W x H mm)	172 X 120 X 70 mm	w/o IF connector
Weigh	2.3 Kg Typ.	
Input Connector	Type N (female) or Type F (female) (Multiplexed IF signal, 10MHz Ref, DC Power)	Separated DC connector – Option
Output Connector	WG-75 (with Groove)	
Cooling	Forced Air(Fan)	
Environmental Specification		
Operating Temperature	-40°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



KU-BAND 8W BUC Outline

Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-KS08F-O	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS08N-O	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE08F-O	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE08N-O	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

Ku-band 16W BUC

This Ku-Band Medium power BUCs are designed for use primarily in VSAT applications.
These units include an L-band up-converter powered by 24 VDC along with L-Band input and 10 MHz reference all in one cable. There is also a high power booster with DC/DC Converter. (External 24 or 48VDC)

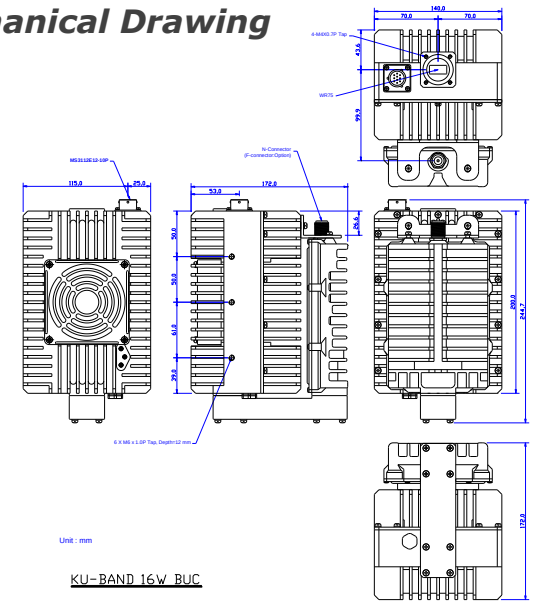
Main Feature

- Mute in case of LO unlocked.
- Over-temperature shutdown & Auto Restart
- Temp Monitor
- SSPA On/Off control
- Fan Alarm (Option)

Item		Specification	Note
Basic Specification			
RF Frequency Range		14.0 ~ 14.5 GHz (Standard) 13.75 ~ 14.5 GHz (Extended)	
IF Frequency Range		950 ~ 1450 MHz (Standard) 950 ~ 1700 MHz (Extended)	
LO Frequency		13.05 GHz (Standard) 12.8 GHz (Extended)	
P1dB min		42 dBm	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		67 dB	
Gain Flatness		± 1.5 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band	
Gain Stability		± 2 dB over temp. range	
IMD3		-26 dBc min. @ 39 dBm Output Power (SCL : 36dBm each, two equal signals 5MHz apart)	
Spurious		-50 dBc @ 42 dBm Output Power	
Harmonics		-50 dBc max. @ 42 dBm Output Power	
Reference Signal		External 10MHz Power Level : -5~+5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
Phase Noise (SSB)	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1 MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	LBUC : 30W max. (from IFL Cable) SSPA : 200W	
Power Requirements	LBUC : 15~30VDC From IFL Cable SSPA : 48 VDC (24 VDC Option)	
Mechanical Specification		
Size (L x W x H mm)	244.5 X 140 X 172 mm	include connector
Weight	5.4 Kg	
Input Connector	Type N (female) – IF, 10MHz Ref	F-Option
Output Connector	WG-75 (with Groove)	
Power/M&C Connector	MS3112E12-10P	
Cooling	Forced Air	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	
Humidity	100% condensing	
Altitude	10,000 ' AMSL	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-KS16F	14~14.5GHz	13.05GHz	0.95~1.45GHz	F-Type
PTB-KS16N	14~14.5GHz	13.05GHz	0.95~1.45GHz	N-Type
PTB-KE16F	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	F-Type
PTB-KE16N	13.75~14.5GHz	12.8GHz	0.95~1.7GHz	N-Type

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C-band BUC

PTB-C Series

This C-Band Medium power BUCs are designed for use primarily in VSAT applications.

These family of outdoor C-band BUCs provide unmatched efficiency and performance in the ultra small and light package in the SATCOM industry.

In addition to four power levels (12/16/20/25 W), two prime DC power levels (24 V or 48 V) are possible.

Preliminary

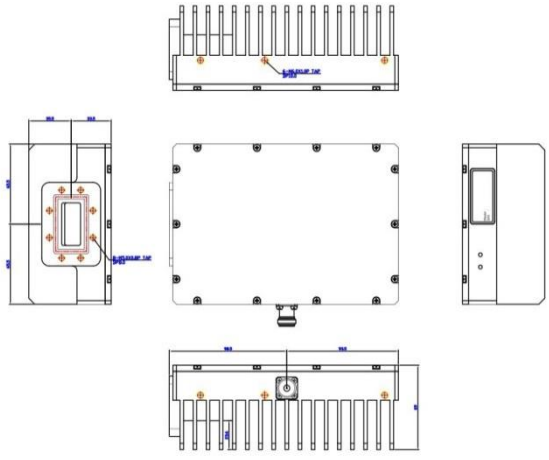
C-band 5W BUC

This C-Band Medium power BUCs are designed for use primarily in VSAT applications.
Other frequency ranges are also available to customer specification.
These series BUCs are uniquely designed to be a high quality but cost effective solution for the VSAT market.

Item		Specification
RF Frequency Range		5.85 ~ 6.425 GHz (Standard)/5.85~6.725(Ext.)
IF Frequency Range		950 ~ 1525 MHz (Standard)/950~1825(Ext.)
LO Frequency		4.9 GHz (Standard/Extended)
P1dB min		37 dBm
Electrical Specification		
Input/Output VSWR		2:1
Gain nom.		60 dB typ.
Gain Flatness		± 2.0 dB max. @ room temp over full band
IMD3		-27 dBc min. @ 34 dBm Output Power
Spurious		-55 dBc
Reference Signal		External 10MHz Power Level : -5 ~ +5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz
LO Phase Noise	100Hz	-65 dBc/Hz
	1kHz	-73 dBc/Hz
	10kHz	-83 dBc/Hz
	100kHz	-95 dBc/Hz
	1 MHz	-115 dBc/Hz

Item	Specification
Power Consumption	37W Typ.
Power Requirements	+18 ~ +60 VDC
Mechanical Specification	
Size (L x W x H mm)	192(L) X 131(W) X 69(H) mm(exclude connector)
Weigh	2.7 Kg Typ.
Input Connector	Type N (female) or Type F (female), Optional
Output Connector	WG-137 (with Groove)
Cooling	Fanless
Environmental Specification	
Operating Temperature	-30°C to +60°C
Storage Temperature	-40°C to +85°C

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	Connector
PTB-CS05F	5.85~ 6.425GHz	4.9GHz	0.95~ 1.525GHz	F-Type
PTB-CS05N				N-Type
PTB-CE05F	5.85~ 6.725GHz	4.9GHz	0.95~ 1.825GHz	F-Type
PTB-CE05N				N-Type

C-band 10W BUC

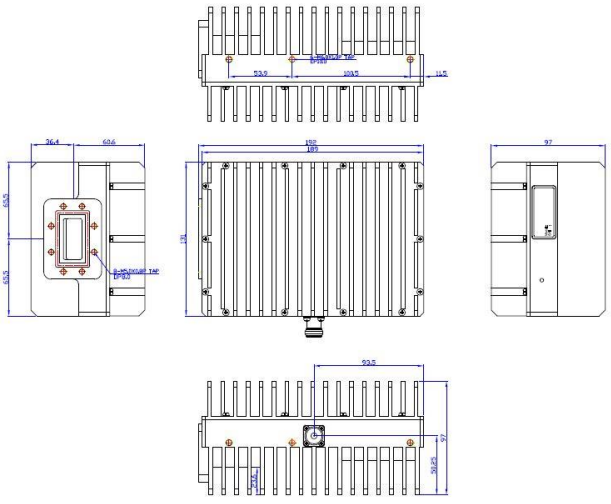
Main Feature

- Small size and light weight : **192 x 131 x 97mm, 2.9kg**
- High Linearity
- High Efficiency
  → **Power consumption : 64W typ.**
- Internal & External Reference detection and auto selection
- LED Indication (Lock status)

Item		*Specification*	
Basic Specification			
RF Frequency Range		5.85 ~ 6.425 GHz (Standard) ,5.85~6.725(Ext.)	
IF Frequency Range		950 ~ 1525 MHz (Standard), 950~1825(Ext.)	
LO Frequency		4.9 GHz (Standard/Extended)	
P1dB min		40 dBm	
Electrical Specification			
Input/Output VSWR		1.5 : 1 max. @ Input port	
Gain nom.		65 dB typ.	
Gain Flatness		± 2.0 dB max. @ room temp over full band	
IMD3		-28 dBc min.(-30 dBc typ.) @ 37dBm Output Power (SCL : 34dBm each, two equal signals 5MHz apart)	
Spurious		-60 dBc	
Spectral Regrowth		-30dBc typ.	
Gain Variation		±2.0dB over temp.	
Requirement of External Ref.		External 10MHz @ IF Cable Power Level : -5 dBm min.	
LED Status		Green	PLL Lock on
		Off	Loss of Lock
LO Phase Noise	100Hz	-70 dBc/Hz max.	
	1kHz	-80 dBc/Hz	
	10kHz	-82 dBc/Hz	
	100kHz	-105 dBc/Hz	

Item	*Specification*
Power Consumption	64W typ.
Power Requirements	24VDC or 48 VDC (Optional)
Mechanical Specification	
Size (L x W x H mm)	192(L) X 131(W) X 97(H) mm, exclude connector
Weigh	2.9 Kg Typ.
Input Connector	Type N (female) or Type F (female), Optional
Output Connector	WG-137 (with Groove)
Cooling	Fanless
Environmental Specification	
Operating Temperature	-40°C to +60°C
Storage Temperature	-45°C to +85°C

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq	IF Freq.	Power	Connector
PTB-CS10F-01	5.85~ 6.425GHz	4.9GHz	0.95~ 1.525GHz	24VDC	F-Type
PTB-CS10N-01					N-Type
PTB-CE10F-01	5.85~ 6.725GHz	4.9GHz	0.95~ 1.825GHz		F-Type
PTB-CE10N-01					N-Type
PTB-CS10F-02	5.85~ 6.425GHz	4.9GHz	0.95~ 1.525GHz	48VDC	F-Type
PTB-CS10N-02					N-Type
PTB-CE10F-02	5.85~ 6.725GHz	4.9GHz	0.95~ 1.825GHz		F-Type
PTB-CE10N-02					N-Type

C-band 20W BUC

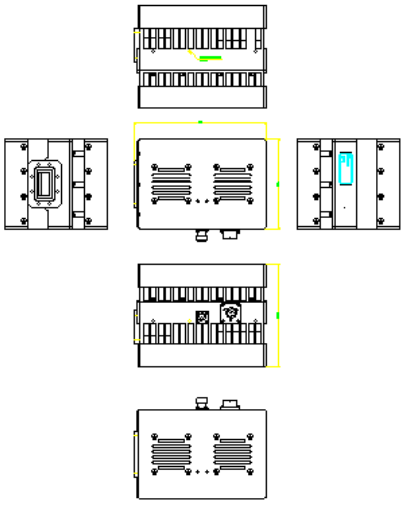
Main Feature

- Small size and light weight
- High Linearity & High Efficiency
  →IMD3:- 26dBc typ @40dBm Pout
  →Power consumption: 180W
- Internal & External Reference detection and auto selection
- LED Indication

Item		Specification
Basic Specification		
RF Frequency Range		5.85 ~ 6.425 GHz
IF Frequency Range		950 ~ 1525 MHz
LO Frequency		4.9 GHz (Non-inverting)
P1dB min		43 dBm
Electrical Specification		
Input/Output VSWR		2:1
Gain nom.		67 dB
Gain Flatness		± 1.3 dB max. @ room temp over any 40 MHz ± 2.5 dB max. @ room temp over full band
Gain Stability		± 2 dB over temp. range
IMD3		-26 dBc min. @ 40 dBm Output Power (SCL : 37dBm each, two equal signals 5MHz apart)
Spurious		-50 dBc @ 43 dBm Output Power
Harmonics		-50 dBc max. @ 43 dBm Output Power
Reference Signal		External 10MHz Power Level : -5~+5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz
Phase Noise (SSB)	100Hz	-60 dBc/Hz
	1kHz	-70 dBc/Hz
	10kHz	-80 dBc/Hz
	100kHz	-90 dBc/Hz
	1 MHz	-100 dBc/Hz

Item	Specification	Note
Power Consumption	180W	
Power Requirements	48 VDC (24 VDC Option)	
Mechanical Specification		
Size (L x W x H mm)	208.2 X 157.2 X 112.2 mm	include connector
Weight	3.7 Kg	
Input Connector	Type N (female) – IF, 10MHz Ref	F-Option
Output Connector	CPR-137 (with Groove)	
Power/M&C Connector	MS3112E12-10P	
Cooling	Forced Air	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	
Humidity	100% condensing	
Altitude	10,000 ' AMSL	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-CS20F	5.85 ~ 6.425 GHz	4.9 GHz	0.95~1.525GHz	F-Type
PTB-CS20N				N-Type
PTB-CE20F	5.85 ~ 6.725 GHz	4.9 GHz	0.95~1.825GHz	F-Type
PTB-CE20N				N-Type

Preliminary

C-band 25W BUC

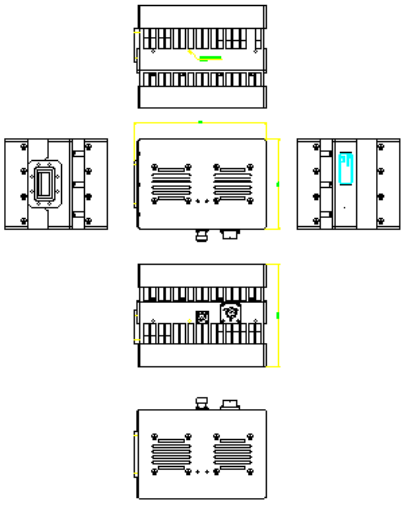
Main Feature

- Small size and light weight
- High Linearity & High Efficiency
  →IMD3:- 26dBc min. @41dBm Pout
  →Power consumption: 230W
- Internal & External Reference detection and auto selection
- LED Indication

Item		Specification	Note
Basic Specification			
RF Frequency Range		5.85 ~ 6.425 GHz	
IF Frequency Range		950 ~ 1525 MHz	
LO Frequency		4.9 GHz (Non-inverting)	
P1dB min		44 dBm	
Electrical Specification			
Input/Output VSWR		2:1	
Gain nom.		67 dB	
Gain Flatness		± 1.3 dB max. @ room temp over any 40 MHz ± 2.0 dB max. @ room temp over full band	
Gain Stability		± 2 dB over temp. range	
IMD3		-26 dBc min. @ 41 dBm Output Power (SCL : 38dBm each, two equal signals 5MHz apart)	
Spurious		-55 dBc @ 44 dBm Output Power	
Reference Signal		External 10MHz Power Level : -5~+5 dBm Phase Noise : -125 dBc/Hz max. @ 100 Hz - 135 dBc/Hz max. @ 1kHz - 140 dBc/Hz max. @ 10kHz	
Phase Noise (SSB)	100Hz	-60 dBc/Hz	
	1kHz	-70 dBc/Hz	
	10kHz	-80 dBc/Hz	
	100kHz	-90 dBc/Hz	
	1MHz	-100 dBc/Hz	

Item	Specification	Note
Power Consumption	230W	
Power Requirements	48 VDC (24 VDC Option)	
Mechanical Specification		
Size (L x W x H mm)	192.0 X 131.0 X 149 mm	
Weight	4.2 Kg	
Input Connector	Type N (female) – IF, 10MHz Ref	F-Option
Output Connector	CPR-137 (with Groove)	
Power/M&C Connector	MS3112E12-10P	
Cooling	Forced Air	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	
Humidity	100% condensing	
Altitude	10,000 ' AMSL	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq	IF Connector
PTB-CS25N	5.85 ~ 6.425 GHz	4.9 GHz	0.95~1.525GHz	N-Type

C-band LBUC (Light Block Up-Converter)

This C-Band Medium power BUCs are designed for use primarily in VSAT applications. Other frequency ranges are also available to customer specification.
These series BUC is uniquely designed to be a high quality but cost effective solution for the VSAT market.

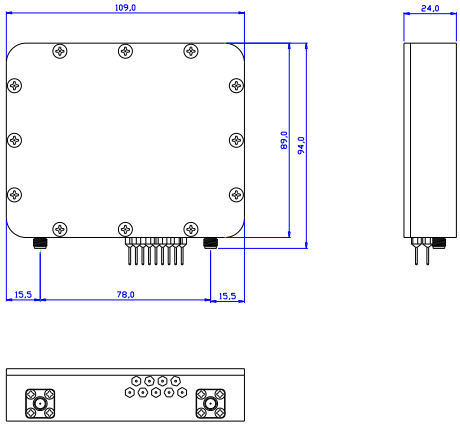
Main Feature

- Mute in case of LO unlocked.
- Over-temperature shutdown & Auto Restart (Option)
- Temp Monitor (Option)
- On/Off control
- Variable Attenuator (Option)

Item	Target Specification	Note
Frequency Range		
RF Frequency Range	5.850 ~ 6.425 GHz	
IF Frequency Range	950 ~ 1,525 MHz	
LO Frequency	4.9 GHz	
Electrical Specification		
LO Phase Noise	Min / Max 100Hz -70 / -63 dBc/Hz 1kHz -80 / -73 dBc/Hz 10kHz -85 / -80 dBc/Hz 100kHz -95 / -93 dBc/Hz 1MHz -120 / -103 dBc/Hz	
Spurious	-50dBc, max @5.85~6.425 GHz -50dBm, max @ Pout<0dBm, Other Frequency	
Gain	25 typ, 30 max dB	
Gain Flatness	± 2 dB max. @ Full Band ± 1.0 dB max. @ 40MHz Band	
Gain Stability	± 0.5 dB @ room Temp ± 2 dB @ operating Temp. range	
In/Out VSWR	2:1	
Connectivity		
In/Out	SMA (f)	
DC/M&C/GND	Feed Through	
Powers		
DC Supplies	DC Feed Through (IFL Cable option)	
DC Range	11 ~ 18 V	
Current Consumption	420 mA, typ	
Environment & M&C		
Operating Temp	-30 ~ 55 ℃	
M&C	Unlock Detect @ M&C Feed Through	

Item	Target Specification	Note
Reference Frequency		
Reference Frequency	10 MHz	
Power Range	0dBm, -5~+5 dBm	
Reference Phase Noise	10Hz -105 dBc/Hz 100Hz -135 dBc/Hz 1kHz -145 dBc/Hz 10kHz -150 dBc/Hz	
Mechanical		
Size	109 X 94 X 24 mm	include connector

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	IF Connector
PTB-CSL	5.85 ~ 6.425 GHz	4.9 GHz	0.95~1.525GHz	SMA(F)

SSPA Line-Up

Ku-band SSPA

PTS-K Series

This Ku-Band SSPAs (Solid State Power Amplifiers) are designed for use primarily in VSAT applications.

These family of SSPAs provide unmatched efficiency and performance in the ultra small and light package in the SATCOM industry.

GaAs Power Transistors used in these SSPA show high linearity and high power handing capabilities, so very suitable for the large bandwidth data transfer systems like VSAT.

Ku-band 12W SSPA

This Ku-Band SSPAs (Solid State Power Amplifiers) are designed for use primarily in VSAT applications.

These family of SSPAs provide unmatched efficiency and performance in the ultra small and light package in the SATCOM industry.

GaAs Power Transistors used in these SSPA show high linearity and high power handing capabilities, so very suitable for the large bandwidth data transfer systems like VSAT.

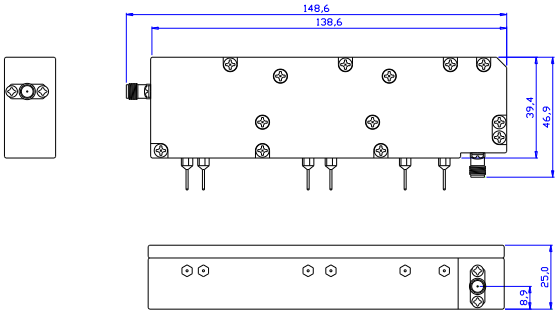
Main Feature

- High Output Power: P1dB=40.8 dBm (min.)
- High PAE
- Broad Band: 14.0 ~ 14.5GHz
- Impedance Matched Zin/Zout = 50 ohm
- Ultra Small Size Package

Item	Specification	Note
Basic Specification		
Frequency Range	14 ~ 14.5 GHz	
P1dB min	40.8 dBm	
Electrical Specification		
Input/Output VSWR	2:1	
Gain nom.	15 dB	
Gain Flatness	± 0.5 dB max. @ room temp over any 40 MHz ± 1 dB max. @ room temp over full band	
Gain Stability	± 1.5 dB over temp. range	
IMD3	-26 dBc min. @ 37.8 dBm Output Power (SCL : 34.8 dBm each, two equal signals 5MHz apart)	
Spurious	-50 dBc @ 40.8 dBm Output Power	

Item	Specification	Note
Current Consumption	10 A max.	
Power Requirements	10.5 VDC	
Mechanical Specification		
Size (L x W x H mm)	148.6 X 46.9 X 25 mm	
Input Connector	SMA (F)	
Output Connector	SMA (F)	
Power Connector	Feedthru	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	IF Connector
PTS-KS12S	5.85 ~ 6.425 GHz	4.9 GHz	0.95~1.525GHz	SMA(F)

Ku-band 16W SSPA

This Ku-Band SSPAs (Solid State Power Amplifiers) are designed for use primarily in VSAT applications.

These family of SSPAs provide unmatched efficiency and performance in the ultra small and light package in the SATCOM industry.

GaAs Power Transistors used in these SSPA show high linearity and high power handing capabilities, so very suitable for the large bandwidth data transfer systems like VSAT.

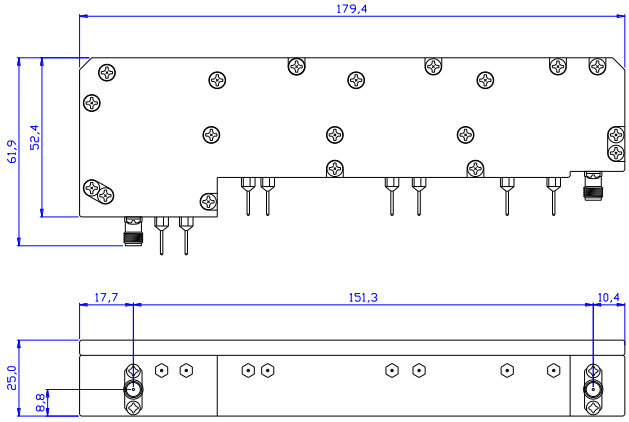
Main Feature

- High Output Power: P1dB=40.8 dBm (min.)
- High PAE
- Broad Band: 14.0 ~ 14.5GHz
- Impedance Matched Zin/Zout = 50 ohm
- Ultra Small Size Package

Item	Specification	Note
Basic Specification		
Frequency Range	14 ~ 14.5 GHz	
P1dB min	42 dBm	
Electrical Specification		
Input/Output VSWR	2:1	
Gain nom.	18 dB	
Gain Flatness	± 0.5 dB max. @ room temp over any 40 MHz ± 1 dB max. @ room temp over full band	
Gain Stability	± 1.5 dB over temp. range	
IMD3	-26 dBc min. @ 39 dBm Output Power (SCL : 36 dBm each, two equal signals 5MHz apart)	
Spurious	-50 dBc @ 42 dBm Output Power	

Item	Specification	Note
Current Consumption	13 A max.	
Power Requirements	10.5 VDC	
Mechanical Specification		
Size (L x W x H mm)	179.4 X 61.9 X 25 mm	
Input Connector	SMA (F)	
Output Connector	SMA (F)	
Power Connector	Feedthru	
Environmental Specification		
Operating Temperature	-30°C to +55°C	
Storage Temperature	-40°C to +75°C	

Mechanical Drawing



Line-Up

Model No.	RF Freq.	LO Freq.	IF Freq.	IF Connector
PTS-KS16S	5.85 ~ 6.425 GHz	4.9 GHz	0.95~1.525GHz	SMA(F)

Accessory Line-Up

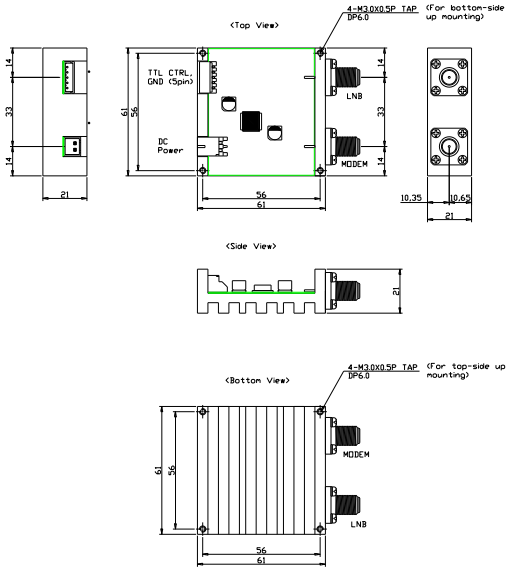
Multi-LO LNB Controller

Main Feature

- LNB control for the Multi-LO LNB (Philtech)
  -TTL Compatible Control I/F
- Generates 13VDC or 18VDC
- Generates 22kHz tone signal
- Burst DiSEqC™ encoding
- Line (Cable) Loss Compensation
- LNB short circuit protection and diagnostic.
- Internal over temperature protection
- Backward current protection
- Status LED Indicator
- Custom modification possible.

Item	Parameters	Specifications			Condition
		Min	Typ	Max	
Electrical Spec.	Pass-Band Frequency	0.95 GHz		1.7 GHz	L-Band
	LNB Port to MODEM port Insertion Loss			- 2 dB	
	LNB Port VSWR			2:1	
	MODEM Port VSWR			2:1	
	Input Voltage Range	15 ~ 25 VDC			VSEL=L, LLC=L
		23 ~ 25 VDC			VSEL=L, LLC=H
	Output Voltage (V)	12.5	13	13.5	VSEL=L, LLC=L
			14		VSEL=L, LLC=H
		17.3	18	18.7	VSEL=H, LLC=L
			19		VSEL=H, LLC=H
	Load regulation		80 mV	180 mV	VIN=22V VOUT=13/18V Io = 50 ~ 500mA
	Tone Frequency(kHz)	20	22	24	ENT=H
	Tone Amplitude(Vpp)	0.55	0.72	0.9	ENT=H
	Tone duty cycle	40%	50%	60%	ENT=H
	Output Current Limiting	500 mA	650 mA	800 mA	
	Dynamic overload protection OFF time		1100 ms		Output Shorted
	Control input pin logic LOW (VIL)			0.8 V	
	Control input pin logic HIGH (VIH)	2.5 V			
	Control pins input current		20 uA		VIH = 5 V
	Temp. shutdown threshold		150 ˚C		

Item	Parameters	Specifications		Condition
Mechanical Spec.	LNB Interface	F-connector (75 ohm)		N-connector : option
	MODEM Interface	F-connector (75 ohm)		N-connector : option
	EXT DC Interface	2-pin Power Connector		
	Control Interface	5-pin Harness Connector		
	LED Indicator	Green		Normal Operation
		Red		Overload Status
	Mount Hole	Top	M3, 0.5P Tap, 4Pcs	
		Bottom	M3, 0.5P Tap, 4Pcs	
	Dimensions	61.0(L) x 61.0(W) x 21.0(H) mm		Exclude F-connector
	Weight	200g Max.		
Thermal Spec.	Operating temperature	-30 ~ +60 ˚C		
	Storage temperature	-40 ~ +80 ˚C		



Line-Up

Model No.	LNB/MODEM I/F Connector
PTA-LCF-01	F-Type
PTA-LCN-01	N-Type

Line Amplifier for Maritime VSAT

Main Feature
- up to 1.7GHz
- F-connector (N-connector option)
- DC Pass
- 22kHz Tone Pass
- RF Low Pass Filter

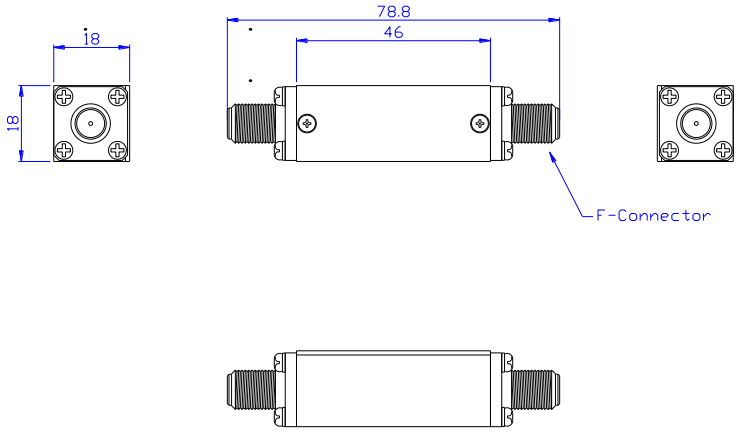
Applications
- Maritime VSAT Tracking Antenna
- DBS Receive Antenna

Item	*Parameters*	*Specifications*			*Condition*
		Min	*Typ*	*Max*	
Electrical Spec.	DC Input Voltage			50V	
	DC Input Current			400mA	
	RF Input Power			-5dBm	
	Frequency	950MHz		1700MHz	
	Gain	10dB		15dB	
	Rejection @ 2.4GHz		35dBc		
	VSWR (RF In)			1.8:1	950~1700 MHz
	VSWR (RF Out)			1.8:1	950~1700 MHz
Mechanical Spec.	I/O Connector	F-connector			N-Connector option
	Dimension	18 X 18 X 46 mm			Exclude connectors
	Weight				
Environmental Spec.	Operating Temperature	-40 ° C		55 ° C	
	Storage Temperature	-55 ° C		85 ° C	

Line-Up

Model No.	*I/O Connector*
PTA-LAF-01	F-connector
PTA-LAN-01	N-connector

Mechanical Drawing



Unit : mm

Bias-Tee / Multiplexer

Main Feature
- 50VDC/4A
- SMA Connector (10MHz IN, DC IN, MUX OUT)
- RF HPF (option)
- Low Insertion Loss
- Good Isolation
- Compact size

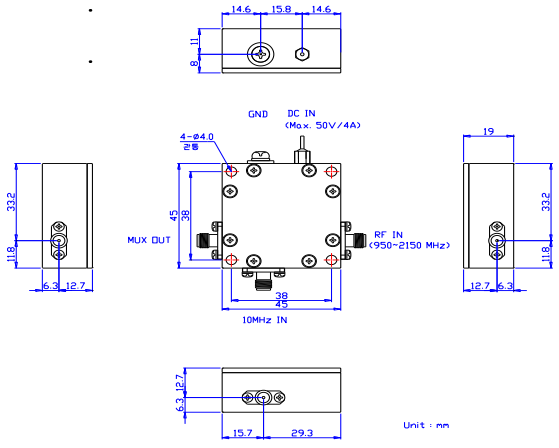
Applications
- Satellite IF Band
- DC Power Supply for high power BUC/LNB
- Test Accessory

Item	Parameters	Specifications			Condition
		Min	Typ	Max	
Electrical Spec.	DC Input Voltage			50V	
	DC Input Current			4A	
	RF Input Power			30dBm	
	Insertion Loss (RF → MUX Out)			0.5dB	950~2150 MHz
	Insertion Loss (Ref In → MUX Out)		1dB		10 MHz
	Isolation (Ref In ↔ MUX Out)			-30dB	950~2150 MHz
	Isolation (Ref In ↔ RF In)			-30dB	950~2150 MHz
	Isolation (RF In ↔ DC In)			-50dB	10 MHz
	VSWR (RF In)			1.5:1	950~2150 MHz
	VSWR (MUX Out)			1.5:1	950~2150 MHz
Mechanical Spec.	Interface (RF In, MUX Out, Ref In)	SMA (F)			
	Interface (DC)	EMI Feed-thru			
	Dimension	45 X 45 X 19 mm			Exclude connectors
	Weight	85g			typ.
Environmental Spec.	Operating Temperature	-55 ° C		85 °C	
	Storage Temperature	-55 ° C		100 °C	

Line-Up

Model No.	Frontal Isolator
PTA-BT-01	With RF HPF option
PTA-BT-02	Without RF HPF option

Mechanical Drawing



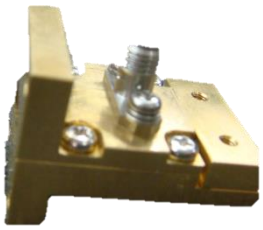
Passive Accessories

Waveguide to Microstrip Transitions (C-Band, X-Band, Ku-Band, K-Band)
50 ohm to 75 ohm Impedance Transformer, etc.
Custom Design possible.

Waveguide Adaptors

Waveguide to Microstrip Transitions (C-Band, Ku-Band, K-Band)
Custom Design possible.

WG-42



WG-62

WG-75

WG-112

WG-137